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Sector Report: Agriculture in West Bank/Gaza

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Introduction

The agriculture sector is one of the main economic activities in West Bank/Gaza. Historically, West Bank/Gaza has traditionally been renowned for trading and agriculture, and even the traditional industries in West Bank/Gaza are strongly related to Agriculture. Although agriculture still plays an important role in the Palestinian economy, this role, however, has been declining. The sector suffers form serious problems related to water, availability of land, labor and obstacles of exporting fresh produce abroad.

The contribution of agriculture to the Gross Domestic Product is 7% in 2000 (down from 8% in 1999). Additionally, around 14% of the total labor force is working in the sector (around 85,000 workers). The agriculture sector is major contributor to Palestinian exports, as its contribution to the total exports is around 23%, with a total value of $ 92 million for the 1999/2000 seasons.

This report will look at the Palestinian agricultural sector is general, with special attention being given to the horticultural sub-sector, as it carries the greatest potential for development, investment and exports.

The Agricultural Sector In West Bank/Gaza

A. Size and Location of Agricultural Land in West Bank/Gaza

In 1999 the total area used for agricultural purposes was around 1.6 million dunums, down from 1.8 million in 1993/4, of which 90% lies in the West Bank and the balance in Gaza Strip. Around 1.124 million dunums (70%) of agricultural land is under fruit trees, 159,000 dunums (10%) is under vegetables, and 329,000 dunums (20%) is under farm products. In addition, there are some 16,500 heads of cattle and over 780,000 sheep and goat. Irrigated agriculture is predominant in Gaza (71%), while it covers less than 6% of the cultivated area in the West Bank.

The West Bank covers an area of about 5,570 km2, of which only 30% is under cultivation, and only around 8% of the cultivated area is under irrigation using water from 98 springs and 328 wells. The Gaza Strip covers an area of only 365km. Of the 1993/4-cropped area (around 160,000 dunum) 72% were irrigated.

Table 1: Basic Indicators

Item	Gaza Strip	West Bank
Population Density (1996)	2465/ km2	290/ km2
Total area	365 km2	5570 km2
Cultivated land (dunum)	1,440,000	160,000
Use of Irrigation of total Ag. Land	8%	72%

As defined by the Ministry of Agriculture (MOA), West Bank/Gaza is divided into five agro-ecological zones. The first is the coastal plain zone (Gaza Strip). It is approximately 7 km in depth and approximately 52 km in length, which extends from north to south on the southeastern shores of the Mediterranean Sea. Annual rainfall ranges from 300-350 mm. This area is dubbed the “Fish basket” of West Bank/Gaza. The second zone is the semi-coastal zone (north-western corner of the West Bank), it includes the Jenin, Tulkarm and Qalqylia provinces. Average annual

rainfall is approximately 600mm. The third is the middle elevation zone extending from Jenin-north to south Hebron. The fourth is the steppe zone that extends from eastern Jenin to the Dead Sea in the south. Average annual rainfall here is 150-350 mm. Currently; this area is either closed or confiscated by the Israeli authorities. The fifth is the Ghor (western Jordan Valley) zone with an average annual rainfall of 100-250 mm.

B. Ownership and Labor

Data on the socio-economic structure of agriculture, including land tenure system and size of holdings, are scarce. Data are available only on tenure system, and provided by NGO's (PARC and Arab Thought Forum), which show a high level of farm ownership (77% in Gaza and 55% in the West Bank). Sharecropping is also common (30% in West Bank and 20% in Gaza). (Source: ESCWA/FAO, National Farm Data Handbook, 1995).

Although data on size of holdings are not available, it is greatly recognized that, with few exceptions (mainly in the Jordan Valley), land holdings are fragmented, which precludes reaping the full benefits of economies of scale in production. Nevertheless, the high level of mechanization in Palestinian Agriculture (particularly in green houses, land preparation irrigation and pesticide spraying) improves production efficiency.

Agriculture is a major source of employment. Around 14% of the total labor force is working in the sector or around 85,000 workers for the year 2000. According to official Israeli figures, agricultural employment in Gaza has remained roughly stable during the 1980s, but in the West Bank it has dropped by over 20 per cent. Average labor daily rate in West Bank and Gaza is around $10, a rate that is significantly cheaper than the Israeli average rate of $15 per Day. When comparing the WBG figures to those of neighboring countries it is extremely high, as the average daily rate for an Egyptian laborer is around $2 per day.

C. Product Varieties and Characteristics

The geographic and climate diversity in West Bank/Gaza has helped in providing a relatively wide range of agricultural products. Although the area of West Bank/Gaza is relatively small, the variability in climate is high, thus allowing production of vegetables all over the year. The warm winter months in the Ghor area allow production of winter vegetables and the moderate climate in summer allows production of vegetables in the mountains and coastal areas of West Bank/Gaza. Also, with the current use of greenhouses, vegetables are produced all year long especially in the coastal and semi coastal areas of West Bank/Gaza

The Agro-Ecological zones, with their different climate and availability of water and rainfall, have these major product groups:

1. The coastal plain zone (Gaza Strip): the dominant agricultural pattern is citrus, vegetables, cut flowers and strawberries.
2. The semi coastal zone: The dominant agricultural products are Irrigated vegetables, citrus and field crops
3. The middle elevation zone: Fruit trees (especially Olive) and field crops are the main crops

4. The steppe zone: This area is considered the only rangeland in West Bank/Gaza where also cereal crops (i.e. barley) can be cultivated.
5. Western Jordan Valley (Al- Ghor): suitable for off-season winter vegetable and subtropical fruit tree cultivation (Bananas).

Although these patterns or crops are the dominant crops in each of the Agro-ecological zone, there are similarities in the production of certain products between these zones.

1. Open field vegetables are the most common pattern of planting vegetables in the five agro-climatic zones. Common crops include tomatoes, cucumbers, eggplants, and squashes, etc. Additionally, these crops can be grown under plastic tunnels and green houses. Low plastic tunnels provide some protection from frost for vegetables. However, they are less efficient than plastic houses. Farmers tend to use these tunnels especially in the Ghor area to provide protection from frost and improve the agricultural microclimate. Plastic houses allow good control for the climate allowing planting vegetables all year in most areas in the West Bank and Gaza. However, plastic houses are mostly utilized in the coastal and semi-coastal zones of West Bank/Gaza new vegetable varieties have been introduced, which are suitable for the area and have high productivity.

2. Field crops include potatoes and onions in addition to forages and grain crops. Grain crops such as wheat and barely are rarely planted under irrigated agricultural conditions with the exception of the Ghor area. In this zone, rainfall is not sufficient for planting grain field crops, which are frequently planted as part of crop rotation. In areas irrigated by springs, farmers plant some field crops such as wheat, barely and alfalfa as part of their crop rotation. Spring water, which is available in winter for, free or at very low cost is used for supplementary irrigation of these crops

3. Irrigated fruit trees planted in West Bank/Gaza are mainly citrus trees in coastal and semi-coastal areas and bananas in the Ghor. In the coastal zone, area of citrus trees reduced from about 70,000 donums in early 1990's to about 43,000 donums in 1996/1997. However, many of these citrus trees are under poor conditions and lack proper maintenance and enough water due to the low availability of water, the low quality of irrigation water and the possible loss of these lands for urbanization as a result of high land prices there. In the semi-coastal areas, the conditions of citrus farms are better than that in Gaza due to better water availability and water quality. Jericho district has about 1400 donums of citrus trees, which depend mainly on spring water. However, the dominant fruit trees in Jericho are bananas covering 5800 donums. Although bananas consume more water than citrus trees, but they have higher economical prices in the local markets

Table 2: Cropping pattern for Irrigated Agriculture in West Bank/Gaza for 1996/1997

Areas and Cropping Pattern						
		Coastal	Semi-Coastal	Mountains	Ghor & semi-Ghor	Sum
Fruits	Citrus	43,812	13,843	101	4,855	62,611
	Bananas	0	0	0	5,770	5,770
	Other fruits	13,215	1,194	11	1,425	15,845
	Sub sum	57,027	15,037	112	12,050	84,226
Vegetables	Open Veg.	28,180	16,636	2,199	42,291	89,306
	Greenhouses	8,597	8,910	132	705	18,344
	Tunnels	6,387	6,740	1	6,808	19,936
	Sub sum	43,164	32,286	2,332	49,804	127,586
Field Crops		14,360	3,977	7	10,044	28,388
Total Crops		114,551	51,300	2,451	71,898	240,200

Source: PCBS, 1998

D. Sales and Market Share

There are very strong links between the Israeli and Palestinian agricultural markets. Israeli fruit, potato, and onion producers, packers and wholesalers appear to have very efficient links to West Bank and Gaza wholesale markets. The Palestinian market is almost totally dependent on Israeli supplies for potatoes, onions, apples, mangos, milk, red meat (Beef) and Fish. The West Bank and Gaza fruit and vegetable distribution is primarily through low cost daily markets, with little products passing through retail shops. The West Bank and Gaza are supply the Israeli market with certain crops, especially, low value added products, such as tomatoes, cucumber, zucchini, eggplant, green pepper, guavas. Some high value added products such as strawberries and flowers are also supplied to the Israeli market for re-export.

The total value of agricultural products for the year 1998/99 is around $ 760 million, divided as follows: 54% for plant production and 46% for animal production. Table 3 shows the different items in agriculture production, in terms of Palestinian production and consumption. The figures clearly indicate that in certain items such as olives, the West Bank and Gaza's average production is almost 2.5 times the average consumption, and thus the balance is exported to Jordan and the Gulf States. Other items like red meat, fish and milk, the Palestinian Territories depend on buying from Israeli sources.

Table 3: Consumption and Self-sufficiency of Agricultural Products for 1997 (in 1000's tons)

Item	Production	Consumption	Self Sufficiency
Vegetables	447	527	91 %
Fruits	236	182	145 %
Field Crops	118	-	-
Olives	131	55	236 %
Red Meat	12	35	35 %
Poultry	37	40	90 %
Milk (1000 liters)	97	160	61 %
Eggs (in million)	400	440	90 %
Fish	3.5	8.3	42 %

Source: Ministry of Agriculture Report, April 2002

E. Local and International Markets

The Agricultural Trade patterns for the WBGS represent a unique case in the Palestinian economy, whilst the imports are still higher than exports; the latter remained to be a significant contributor to the total Palestinian exports (see Table 4). According to the latest statistics by the Ministry of Agriculture, these numbers have risen significantly in exports and imports, accompanied by a rising ratio of imports to exports. In 1998/99 the total season exports were around $112 million, with around $500 million imports. For the year 1999/2000 exports were $92 million with an ever-high figure of $718 million of imports.

Table 4: Agricultural Trade

West Bank and Gaza Strip				
In current US$ million	**1990**	**1991**	**1992**	**1993**
Exports				
Agricultural exports to Israel	32(55%)	34(52%)	36(55%)	22(55%)
Agricultural exports to Jordan	23(40%)	29(44%)	27(41%)	20(45%)
Agricultural exports to Others	3	3	3	2
Total	**58**	**66**	**66**	**44**
Imports				
Agricultural imports from Israel	92	130	155	141
Agricultural import from Jordan	23	29	27	20
Agricultural imports from others	3	3	3	2
Total	**118**	**162**	**185**	**163**

Source: Palestinian Economic research Institute and The World Bank, Development under Adversity, Palestinian Economy in Transition (Draft 2), September, 1997

Table – 5 presents an estimation of fresh fruits and vegetables to Jordan and Israel. The numbers indicate that fresh vegetable exports to Jordan are declining dramatically, whilst the exports to Israel are increasing. As for the fresh fruits, the amounts exported are generally declining. WBG growers do not appear to realize the changes in fruit and vegetable production around them. The rapid diversification and expansion of production by Turkey, Syria, Egypt and Jordan mean that the traditional Palestinian markets (Jordan and the Gulf) look forward to an expanding supply of lower costs fruits and vegetables. The higher cost of labor, transportation, scarcity of water is all factor conducive to making the export pf traditional agricultural products less competitive. An example of that is the simple comparison between WBG tomatoes with those of Morocco. In addition to the fact that production costs are much lower in Morocco, the cost of shipping from Morocco to Europe is around $0.30/Kilo, whilst the cost is around $1.00 from Ben Gurion Airport to Europe.

Some Palestinian growers are aware of the fact that they cannot compete with traditional products in export markets, and therefore, they have to diversify their production to higher value added products, such as flowers, strawberries and cherry tomatoes. The retail price at certain seasons is very high and can absorb the high costs carried by Palestinian producers. Gazan

Strawberries are available as early as November. The highest prices in the European market for strawberries are in the months November to January. Although the Gazan Strawberries carry a promising opportunity for direct export, the Israeli Agrexco Company, however, controls the crop from early production to marketing. The company provides farmers with plants and packing material and is in charge of pre-cooling and shipping. Gaza's exports of strawberries are around 1000 tons/Year.

Another example of exportable products (with strong Israeli ties) is the cut flowers. This is a relatively new industry (introduced in 1990) to replace citrus crops and is primarily located in the Gaza Strip, with 90% of production located in or around Rafah area. The industry has grown significantly, and by 1996, the industry utilizes more than 700 dunums, with an annual production reaching more than 70 million stems, all being exported to the European market. Similar to the Strawberries' case, the cut flowers producers are very dependent on the Israeli side, in terms of production, packing, pre-cooling, shipping and marketing. The risks incurred in direct exports are related to the Israeli security procedures and border crossing. These two products are perishable and thus require fast transportation, an efficient cold chain infrastructure and proper airport facilities.

Table 5: Estimates of Palestinian Exports of Fresh Vegetables and Fruits to or through Israel and Jordan, 1988 – 1996 (Metric tons)

	Fresh Vegetables		Fresh Fruits	
	Israel	Jordan	Israel	Jordan
1988	25.420	23.500	27.140	113.400
1989	27.450	6.700	29.880	107.100
1990	30.710	4.400	31.980	179.300
1991	45.250	2.900	37.760	115.100
1992	38.460	2.600	35.950	101.300
1993	44.660	3.000	62.200	105.200
1994	42.990	1.100	21.310	93.600
1995	96.490		26.180	65.800
1996	119.080		31.500	62.700

F. Export Potential

The West Bank and Gaza agricultural sector has good prospects for exports. Many believe that large portions of certain crops are already exported to Europe and the States (Strawberries and Cut flowers) and to Jordan and the Gulf (Olive oil and citrus). Other traditional items such as tomatoes and cucumber are becoming less competitive and are mainly sold in the Israeli market. With relatively high cost of labor, high land prices and the problem of the availability and quality of water, the Palestinian agricultural sector needs to adopt new strategies to become more export oriented.

1. Greater focus on higher value products. There is a need to extract more value from what West Bank/Gaza produces. Olive oil production has to be improved, in terms of post harvest handling and pressing, better bottling and packing, and a more complex process of marketing "extra-virgin olive oil from the Holy Land". Use the green house facilities that already exist

to produce higher value products such as cherry tomatoes, strawberries, organic vegetables and a more diversified set of cut flowers.

2. Improve productivity. Inability to make direct market links to external markets has led to a serious under investment in post-harvest packing storage and handling facilities. These investments will improve quality and reduce losses and extend the shelf life of the products. An important element in the exporting process of the perishable products, the pre-cooling facilities, is not available in WBG and can only be found in Israel. This simple process can significantly improve the product quality, shelf life and reduce losses, and thus improving the returns of the farmers.

3. Improving the policy and regulatory environment. Pesticide residue management, phytosanitary inspection and certification, and enforcement of client market grades and standards for exported products all need urgent attention as primary requirements for export markets, especially Europe and the United States.

4. Utilize The Gaza International Airport. Gaza Airport presents an excellent opportunity for quick and direct exports to Europe and the Gulf markets. The Airport, however, is not fully equipped to handle cargo shipment, let alone agricultural products. The airport needs Air Cargo facilities, including cold storage, handling equipment and containers. Flight arrangements can be made and products can be delivered in Europe in a matter of hours.

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